

We claim:

1. A catalyst comprising a polymer-encapsulated titanium zeolite.
2. The catalyst of claim 1 wherein the titanium zeolite is a titanium silicalite.
3. The catalyst of claim 2 wherein the titanium silicalite is TS-1.
4. The catalyst of claim 1 wherein the titanium zeolite is titanium beta.
5. The catalyst of claim 1 wherein the polymer is selected from the group consisting of polystyrenics, polyolefins, polyureas, polyacrylics, polyurethanes, polyesters, fluorinated polymers, polyamides, polysaccharides, polypeptides, polynucleotides, and mixtures thereof.
6. The catalyst of claim 5 wherein the polymer is polystyrene.
7. A process which comprises oxidizing an organic compound in the presence of hydrogen peroxide and the catalyst of claim 1.
8. The process of claim 7 wherein the organic compound is an olefin and the oxidation product is an epoxide.
9. The process of claim 8 wherein the olefin is propylene.
10. The process of claim 8 wherein the titanium zeolite is TS-1.
11. The process of claim 8 wherein the polymer is selected from the group consisting of polystyrenics, polyolefins, polyureas, polyacrylics, polyurethanes, polyesters, polyamides, fluorinated polymers, polysaccharides, polypeptides, polynucleotides, and mixtures thereof.
12. The process of claim 7 performed in the presence of a solvent selected from the group consisting of water, alcohols, carbon dioxide, and mixtures thereof.
13. The process of claim 7 wherein the organic compound is an arene and the oxidation product is a phenol.
14. The process of claim 7 wherein the organic compound is a phenol and the oxidation product is a catechol.
15. The process of claim 7 wherein the organic compound is a ketone and the oxidation product is an ester or a lactone.

16. The process of claim 7 wherein the organic compound is an aldehyde or a ketone, the process is performed in the presence of ammonia or an amine, and the oxidation product is an oxime.

17. The process of claim 7 wherein the organic compound is an alkane and the oxidation product is an alcohol, a ketone, or a mixture thereof.

18. The process of claim 7 wherein the organic compound is a thioether and the oxidation product is a sulfone, a sulfoxide, or a mixture thereof.